THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888

No. 11. MARCH 14, 1953 VOL. 65.

NEMATODIRUS INFESTATION—A PROBABLE CAUSE OF LOSSES AMONGST LAMBS

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INTRODUCTION

A disease condition of lambs, apparently associated with heavy *Nematodirus* infestations, has been observed amongst lowland flocks in Berwickshire, Northumberland and adjoining areas since about 1943, but did not reach serious proportions until the spring of 1951 when as many as 75 per cent. of farms in the district were reported to be affected. In that year a prolonged winter, followed by very poor grazing until most of the lamb crop were about eight weeks old, precipitated a severe outbreak of disease. A 10 per cent. death-rate amongst the lamp crop on these farms, which typically run several hundred breeding ewes, was not uncommon when they were about 8 to 14 weeks of age. Anthelmintic treatments were reported to be practically useless in controlling the condition and phenothiazine in particular suffered a severe setback to its deservedly valuable reputation owing to a general lack of appreciation of its low efficiency against *Nematodirus* spp.

In 1952—an ideal lambing season with very favourable nutritional conditions—a detailed investigation was carried out on 16 farms in the area to obtain a better insight into the factors involved in the disease with a view to instituting more effective control measures. The resulting information, together with a large amount of experience derived from general practice, is given below.

DESCRIPTION OF DISEASE

The disease is confined to the season's lambs, the usual time of onset being in late May or early June in the Scottish Border area, probably varying somewhat with climatic conditions, being earlier in more forward years. The time of year is a more important factor than the age of the lambs in determining the date of its appearance. Two flocks lambing in January—not, as is usual in that area, in late March—showed symptoms only a week or two sooner than those born at the later period.

Typically, scouring begins in about half the flock, and over the next 10 days spreads to most of the remainder, usually excluding very late or bottle-fed animals. The scouring—which may often be accentuated by the lush grazing available on the ley pastures that constitute most of the grazing in the area—varies in intensity and lambs suffer a marked setback only if it becomes persistent. In mild outbreaks scouring ceases after a month or so and slow recovery takes place. The losses which occur usually happen more suddenly than is the case with intestinal *Trichostrongylus* infections ; intense scouring commences, and even in lambs which have suffered little or no primary loss of condition death from dehydration occurs within two days. These animals show no rise in temperature in the acute stage.

Secondary infections, presumably resulting from extreme weakness, naturally supervene in the late stages and a discharge from the eyes is quite common. The animals often remain standing until just prior to death. No blood was seen in the faeces in 1952 and faecal examination showed negligible numbers of coccidial oocysts, but it has been suggested that coccidiosis or possibly some bacterial disease might have been present in the area in 1951 as good results were obtained in certain cases with sulphamezathine treatment.

Post-mortem Examination

An acute inflammation of the alimentary tract, from abomasum to caecum inclusive, is found in about half the cases with no predilection for the site of the small intestinal worms. It may be presumed that in some cases clostridial invasion supervenes to hasten death.

A white fibrinous layer covering the gut mucosa was seen in some of the earlier outbreaks, but not in 1951 or 1952. No characteristic macroscopic lesions are found in other organs.

Helminthological Findings

The contents of the abomasum and small intestine were examined in 19 lambs which died in 1952. Only three of these lambs had a heavy *Ostertagia* burden of between 4,000 and 5,000 worms in the abomasum ; three more had between 1,000 and 2,000, and the remaining 13 had fewer than 1,000. (The common *Ostertagia* species in the area are *O. circumcincta* and *O. trifurcata*.)

The small intestine contained, for all practical purposes, only *Nematodirus* spp., of which over 95 per cent. were apparently the new species provisionally named *N. battus* (Crofton & Thomas, 1951), the remainder being *N. filicollis*. These worms become inextricably matted together and numerical estimates are difficult. The following approximate burdens were found.

TABLE I

Number of lambs	Number of *Nematodirus* worms
3	30,000
2	20,000
1	18,000
1	14,000
3	10,000
1	8,000
1	6,000
1	4,000
2	3,000
2	2,000
1	800
1	100

Total 19. Average worm burden, 11,626 *Nematodirus* spp.

These represent conservative estimates of the totals causing disease as the intense scouring prior to death was eliminating worms which could be found undigested in the liquid faecal samples. When it is considered that even 3,000 to 4,000 *Trichostrongylus colubriformis* have been recorded as causing death in two- to three-month-old lambs (Gordon, 1950) it would seem likely that the burdens of *Nematodirus* found here, being considerably larger worms, were an important factor in the majority of the losses.

Evidence Supporting the Rôle of Nematodirus *spp.*

1. In our experience the disease is not seen in flocks grazing on first-year leys. Faecal worm egg counts were made on healthy lambs on first-year leys and on lambs suffering losses on older pasture on two farms.

	First-year ley—lambs healthy	Older pasture—lambs dying
Farm "A"	Less than 50 *Nem.* e.p.g.	1,170 *Nem.* e.p.g.
Farm "B"	10 *Nem.* e.p.g.	1,810 *Nem.* e.p.g.

2. The disease was not seen in hill flocks run on farms at which losses were occurring in lowland animals. One outbreak was reported in Blackface lambs after moving from the hill on to lowland pasture, an incubation period of about three weeks being given.

3. Ninety faecal worm egg counts on scouring and non-scouring animals in the same fields gave the following results. These samples were taken early in the outbreaks and egg counts done by the McMaster (Gordon-Whitlock) method.

Faeces, firm or pellets ... 26 samples ; mean *Nematodirus* e.p.g., 986
Faeces, soft ... ... 29 samples ; mean *Nematodirus* e.p.g., 661
Faeces, "liquid" ... 35 samples ; mean *Nematodirus* e.p.g., 1,223

Allowing a conservative multiplying factor of three to correct for the water content in the liquid samples, the badly scouring animals were passing well over three times as many worm eggs as the non-scouring healthy ones.

4. From 250 egg counts carried out on animals from 16 farms showing various phases or absence of disease, it was concluded that scouring appeared at a level of 500 *Nematodirus* e.p.g., deaths might be expected over 1,000 e.p.g. and were almost certain over 1,500 e.p.g. Samples submitted in general practice by farmers suffering losses were usually approaching 2,000 e.p.g. In later stages of an outbreak losses may still occur when the mean *Nematodirus* egg count has dropped to as low as 500 e.p.g.

5. Severely scouring lambs can sometimes be saved by putting on to dry food—this is more suggestive of helminthological than of bacteriological causes for the disease. Pulpy kidney vaccination did not prevent the disease on one farm.

6. The disease occurred on two farms where adequate minerals and trace elements were used.

7. The heavy losses in 1951 indicate the typical relationship that exists between helminthiasis and malnutrition.

Experience with Anthelmintics

Anthelmintic treatment with many preparations proved virtually valueless during the severe 1951 outbreak. In 24 specific cases which were treated with phenothiazine, 14 farmers said that it failed to prevent onset of the disease (and therefore usually maintained it precipitated its occurrence), three said it failed to stop losses, whilst four thought it prevented its occurrence and three more doubtfully supported this view. Copper sulphate and copper sulphate-nicotine drenches were likewise of little value.

In view of this situation trials were carried out on 118 eight-month-old healthy lambs with moderate *N. filicollis* infestations (group mean egg counts varying from 79 to 586 e.p.g.) at the Cooper Field Research Station in the autumn of 1951, using all the common anthelmintics. The results are summarised in Table II.

Table II

Treatment	Number of lambs treated	Percentage reduction *Nematodirus* egg count in group
Controls	10	0 (unchanged)
2 c.c. CCl_4 (in mineral oil)	10	30
5 c.c. tetrachlorethylene (in mineral oil)	10	47
20 grammes phenothiazine ...	10	3
1½ fl. oz. copper sulphate-nicotine	10	7
25 grammes hexachlorethane	10	60
Controls	16	−2½ (slight increase)
25 grammes hexachlorethane	16	41
15 grammes hexachlorethane + 20 grammes phenothiazine	16	70
5 c.c. tetrachlorethylene (in liquid paraffin)	10	−14½ (increase)
An additional trial on 8- to 14-week-old Dorset Horn lambs resulted as follows :—		
Controls	7	−82½ (increase)
10 grammes hexachlorethane + 10 grammes phenothiazine	7	48

(The phenothiazine preparations used in these experiments contained some additional copper sulphate but not enough to exert any likely anthelmintic effect against *Nematodirus*. Two pre-dosing and two post-dosing egg counts were done in each case, the latter commencing six or seven days after treatment.)

Because of the above results, in 1952 hexachlorethane or a phenothiazine/hexachlorethane mixture was tried out in the field as a provisional measure whilst the rôle of *Nematodirus* spp. was being investigated.

One of these treatments was used on some 34 farms in the course of general practice, but as might be expected, sometimes failed if used at too late a stage. The results of the treatment, however, were sufficiently encouraging to warrant further testing and it is hoped to carry out a controlled field trial in 1953 to establish their value as preventive agents and thereby also confirm the aetiological rôle of *Nematodirus*.

Suggested Anthelmintic Dosing Routine

Phenothiazine, and for that matter $CuSO_4$-nicotine, are such valuable anthelmintics that it would be unwise to allow their reputation to be lost amongst farmers and shepherds through lack of appreciation of the marked variation in susceptibility of the common sheep helminths to their action. In the month to six weeks in which losses apparently due to *Nematodirus* occur and against which these two anthelmintics have proved of little value in practice, there is a strong argument for change of standard dosing recommendations and the indicated value of anti-*Nematodirus* effect in hexachlorethane will enable this to be done. For lowland lambs born in late March the facts appear to warrant the following system of preventive dosing.

(1) Dose at six to seven weeks of age with 10 grammes phenothiazine + 7½ grammes hexachlorethane to control early established *Ostertagia* and *Nematodirus* prior to any likely onset of disease.

(2) Ten days later, dose with 10 grammes hexachlorethane to prevent a *Nematodirus* build up.

(3) Ten days later dose again with 10 grammes hexachlorethane for the same reason.

(4) Ten days later, *i.e.*, one month after the first dose,

give 10 grammes phenothiazine + 7½ grammes hexachlorethane to check *Ostertagia* and *Nematodirus*. Alternatively, give 15 grammes hexachlorethane if the lambs are scouring.

After this period the emphasis in worm burden tends to shift to heavy *Ostertagia* and *Trichostrongylus* infestations and routine phenothiazine treatment may be preferable. Hoggs in their first autumn and winter are known to pass large numbers of *Nematodirus* eggs and an autumn dose containing phenothiazine + hexachlorethane might reduce pasture infestation for the following year and, incidentally, remove any liver fluke present.

Hill Lambs.—When these are put on to lowland pasture whilst under three months of age, dose with phenothiazine and hexachlorethane three to four weeks after moving.

Outbreaks of Disease.—Use hexachlorethane, varying the dose according to circumstances. Phenothiazine might be given in addition if egg counts or *post-mortem* examination suggest a heavy *Ostertagia* burden (hexachlorethane alone will control *Haemonchus*).

Ewes.—Continuous phenothiazine therapy in the food as long as possible during the spring is the best system to prevent *Ostertagia* building up on the pasture. Where this is not possible, dosing of ewes with phenothiazine four weeks after lambing would probably, theoretically at least, be the most suitable alternative from the point of view of protecting the lamb crop. Data given by Morgan *et al.* (1951), for hill ewes in the same area, show a sixteenfold increase of worm egg output between February and May. This ewe dosing routine would of course be of no value in the control of *Nematodirus*, which rather depends on its very resistant pasture stages to ensure transmission from one year's young sheep to the next season, a factor which is also of some importance to the *Ostertagia* group.

Geographical Distribution of Disease

This condition is known to have reached serious proportions only in the eastern border counties, but two probable outbreaks have been brought to our notice by veterinary surgeons in Lancashire and Northants. Eggs attributable to *N. battus*, however, have been found in faecal samples submitted from sheep, but not cattle, in many parts of England, although some of these animals may have originally come from the North. It is felt that particular attention might be paid to the association between the disease and ley pastures which are so typical of the main affected area. There appears to be no breed resistance to the condition, such diverse types as Blackfaces, Cheviots, Half-breds, Oxford Downs and their crosses all being susceptible.

Summary

1. A disease of lambs which results in scouring and frequently death is described. There is strong circumstantial evidence, but no definite experimental proof, that the chief cause is a heavy infestation with *Nematodirus* spp.

2. This condition has been encountered on as many as 75 per cent. of farms on the eastern borders of England and Scotland.

3. Hexachlorethane has shown some potential value as a controlling agent where other anthelmintics have failed completely and provisional recommendations for its use as a preventive are given. An anthelmintic efficiency of above 40 per cent. should not be expected in practice and the curative value, as opposed to prevention, will therefore be low but still considerably better than phenothiazine or copper sulphate-nicotine, which have been commonly recommended hitherto.

THE TREATMENT OF TICK PYAEMIA OF LAMBS WITH PENICILLIN

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The staphylococcal pyaemia of lambs associated with tick infestation is one of the major causes of death and unthriftiness of lambs in the tick infested areas of Britain. So far no satisfactory method of preventing this disease has been found. It has been shown that lambs from ewes immunised with staphylococcal toxoid receive specific antibody from the colostrum, but the antibody titre of their sera declines rapidly and both experimental and field evidence indicates that such lambs are not protected against the disease. Furthermore, it does not appear to be possible to produce an active immunity with staphylococcal toxoid in lambs of susceptible age (Foggie, 1948). The value of tick deterrents applied to the lamb's body with the object of reducing the numbers of ticks attaching has yet to be assessed. Before the advent of the more modern acaricides Stewart (1944) recommended the use of derris powder for this purpose and some sheep farmers believe that the application of tick deterrents reduces their losses from pyaemia. In a series of trials with gammexane and DDT smears and dips, carried out from this Institute, a smaller proportion of treated lambs than untreated lambs developed the disease but the differences were not significant and it was felt that the results did not justify the considerable extra labour involved in the dipping or smearing of lambs widely scattered on mountain pastures.

In the absence of a satisfactory method of prevention, consideration was given to the treatment of affected lambs. On lightly stocked mountain pastures a simple treatment that could be given by the shepherd would have much to recommend it. With this end in view the intramuscular injection of procaine penicillin in oil was given a preliminary trial in June, 1951, when 20 affected lambs were treated with 30,000 units (0·1 ml. Avloprocil) daily for three days. Of these, one lamb died but the remaining 19 recovered and were in good condition when sent to the lamb sales in August. *Post-mortem* examination of the lamb that died showed the presence of a haemorrhage from the liver and no definite evidence of tick pyaemia. In the spring of 1952 arrangements were made to carry out a more extended trial on the treatment of cases of tick pyaemia with penicillin. The results of this trial are now reported.

Methods

A field station was set up in east Dumfriesshire from May 14th to 29th, and 13 farmers in the parishes of Wester-

Acknowledgments.—Particular thanks are due to Mr. J. Milne, M.R.C.V.S., Duns, in whose practice most of the field work was carried out, for provision of both laboratory facilities and of many of the clinical observations. The writer is also indebted to Mr. W. E. White for technical assistance and to the directors of Messrs. Cooper, McDougall & Robertson, Ltd., Berkhamsted, for permission to publish this paper.

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kirk and Eskdalemuir agreed to notify the occurrence of tick pyaemia cases and to bring affected lambs to an accessible field for daily treatment. On each farm one of every two affected lambs was treated with penicillin, the other being left untreated. As far as possible, pairs of lambs showing similar clinical symptoms were selected. If surgical interference, such as the lancing of superficial abscesses, appeared desirable it was carried out on both treated and untreated lambs. The lambs were ear-tagged for identification. The form of penicillin used in the experiment was procaine penicillin in oil, 30,000 units being contained in 1 c.c. Lambs treated during the first five days of the experiment received an initial intramuscular injection of 30,000 units followed by 20,000 units on the second and third days. Lambs treated during the second week of the experiment were given an additional injection of 20,000 units on the fourth day, but the results fail to show whether this extra injection was beneficial. When possible a *post-mortem* examination was carried out on lambs that died. Of 25 such examinations, 21 confirmed the diagnosis of tick pyaemia. As all casualties were not available for *post-mortem* examination the total death-rate was used in assessing the results. In all, 85 lambs were treated with penicillin and 72 lambs were left untreated as controls.

A record of the condition of the lambs in the experiment was obtained at marking time (about June 11th) and a final assessment of their condition was made during August, when the lamb crop was sorted for the lamb sales. Three of the treated lambs were not seen in August but as the shepherds had not found dead lambs on the hill and believed that the lambs were still in the flock, it is assumed that the ear-tags had been lost and these lambs are not recorded as deaths but are omitted from the final totals.

Ten strains of staphylococci, isolated from cases of tick pyaemia occurring on the farms in the experiment, were tested for penicillin sensitivity by the method of Gould & Bowie (1952). The zones of inhibition of growth resulting from 1 unit of penicillin in a 6·8 mm. disc of filter paper varied from 22 to 28 mm. in diameter. Thus all 10 strains are included in the sensitive class.

Results

From previous experience (Foggie, 1946) it was expected that the majority of cases of tick pyaemia would occur in the last week of May and the first week of June. In the district under consideration in 1952, however, this seasonal incidence was advanced by rather more than one week. Both the numbers of cases reported and the severity of the disease declined during the course of the experiment. Thus 99 cases were first examined between May 14th and 19th and of these 41 (41·4 per cent.) died. Of 54 cases first examined between May 20th and 29th, 15 (28 per cent.) died.

The total death-rates in the two groups at marking time and at the sortings for the lamb sales are shown in Table I.

Table I

The Survival Rate of Treated and Untreated Lambs

		Total No. of cases	No. live	Per cent. live	No. dead	Per cent. dead
June 11th	Treated	85	64	75	21	25
	Untreated	72	47	65	25	35
August	Treated	82	56	68	26	32
	Untreated	72	44	61	28	39

There is no significant difference in the death-rates in the two groups although on both dates the percentage death-rate was slightly higher in the control group.

The effect of the penicillin treatment on the rate of recovery of surviving lambs, however, was much more marked. Table II shows the clinical condition of the surviving lambs in the experiment at marking time.

Table II

Clinical Condition of Surviving Lambs on June 11th

	No. of cases	No. recovered	Per cent. recovered	No. still affected	Per cent. still affected
Treated	64	30	47	34	53
Untreated	47	9	19	38	81

Thus the difference between the numbers of recovered lambs in the two groups at marking time is highly significant ($\chi^2 = 9{\cdot}141$, $P = 0{\cdot}01$ to $0{\cdot}001$).

In August the lamb stocks are sorted by the farmers and shepherds into grades for the lamb sales and this grading was used to estimate the condition of the lambs in the experiment. Thirty-seven experimental lambs on six of the farms were weighed so that an approximate weight equivalent for each grade was obtained. The farmers' grades are as follows :—

Grade	*Class*	*Approximate weight*
Tops	Stock ram and ewe lambs and first class wether lambs	Over 49 lb.
Mids	Second class ewe and wether lambs	39 to 49 „
Thirds	Third „ „ „	30 „ 39 „
Shotts	Lambs unfit for marketing ...	Under 30 „

The final assessment of surviving lambs is shown in Table III.

Table III

Condition of Surviving Lambs in August

	No. of lambs	No. Tops	Per cent. Tops	No. Mids	Per cent. Mids	No. Thirds	Per cent. Thirds	No. Shotts	Per cent. Shotts
Treated	56	14	25	24	43	15	27	3	5
Untreated	44	6	14	15	34	17	38	6	14

A statistical comparison of the numbers of thriving lambs (Tops and Mids) and poor lambs (Thirds and Shotts) in the two groups shows that there is a significantly greater number of thriving lambs in the treated group ($\chi^2 = 4{\cdot}783$, $P = 0{\cdot}05$ to $0{\cdot}02$).

Discussion

These results show that, although treatment with penicillin had only a small effect in reducing the death-rate in lambs affected with tick pyaemia, surviving treated lambs made a much more rapid recovery than surviving untreated lambs. This rapid recovery was reflected in the larger proportion of treated lambs which were classed in the profitable grades (Tops and Mids) for the lamb sales.

In this experiment all the treatments, with a very few exceptions, were carried out by one operator. This entailed the gathering of the lambs into a convenient enclosure and led to a considerable delay between the observation of the first symptoms and the start of treatment. The majority of cases treated had been affected for at least two or three days before

receiving their first penicillin injection. The first evidence of the disease noticed by the shepherds is that the lamb drags behind the ewe and it is felt that, had treatment been started immediately this sign appeared, a greater proportion of recoveries might have been recorded. Administration of the penicillin by the shepherd as soon as the lamb appears ill would probably give the optimum results but the conducting of a controlled experiment on these lines would be very difficult.

The gathering of cases into enclosed fields had the disadvantage that some of the crippled lambs had to be driven for considerable distances from the hill, and a proportion of cases which were too far out to gather had to be omitted from the experiment. On the other hand, there is reason to believe that if the affected lamb and its mother can be driven conveniently to an in-bye field the lamb's chances of survival are greatly enhanced. A large proportion of the deaths from tick pyaemia on the hill are due to secondary causes such as falling into drains, drowning, attack by crows or foxes or the desertion of the crippled lamb by the ewe. For example, two of the control lambs in the experiment were decumbent for four or five weeks, but the ewes, being confined in a 5-acre field, did not stray and continued to suckle the lambs. Although both these lambs remained lame and were very light, weighing approximately 20 lb. and 28 lb., they were still alive in August. Decumbent cases on the mountain rarely survive for one week.

The manufacturers recommend a dose of 1,000 to 2,000 units of penicillin per 5 lb. bodyweight. At the time of treatment the lambs in the experiment weighed about 20 lb. so that the doses given (30,000 and 20,000 units) were approximately six times the recommended dose. It is possible that a more massive dose would give a greater proportion of recoveries and the effect of producing intermittent high blood levels of penicillin by using much larger doses of a water soluble salt is worth investigating (Griffiths, Jones, Shooter & Heady, 1949; White, Baker & Jackson, 1948; Gibson, 1948; Jawetz, 1948).

Although the results in this experiment were not as favourable as had been hoped, it is felt that as there is as yet no adequate protection against tick pyaemia, the findings are worth recording.

Summary

Treatment with penicillin of lambs affected with tick pyaemia had only a slight effect on the death-rate. Recoveries were much more rapid, however, in treated than in untreated lambs and 20 per cent. more of the treated lambs reached the higher grades for the lamb sales.

Acknowledgments.—I wish to thank the farmers and shepherds who co-operated in the experiment. I am also indebted to Mr. J. M. Samuel, who tested the strains of staphylococci for penicillin sensitivity. The penicillin in oil used in the experiment was supplied by Messrs. Imperial Chemical Industries (Pharmaceuticals), the formula being that of Avloprocil with the penicillin at one-tenth of the usual concentration.

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BEZOAR

BY

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In the Bezoar we have a curious instance of the simultaneous employment of an identical poison antidote, in Eastern and Western hemispheres, hundreds of years before contact had been established by Christopher Columbus.

The Bezoar is an accretive calculus found occasionally in the alimentary organs of certain mammals, notably ruminants—deer, goats, sheep, etc., including the parallel fauna of America—llama, vicuna, targua, etc. It appears to originate from some particle of foreign matter—hair, fibre, husk, etc.—which becomes gradually encysted by layers of calcium salts, chiefly phosphates, in a manner not dissimilar to the formation of the pearl in the oyster; or, expressed in quaint medieval English, "The stone taken from the belly of a beaste is like to an akorn and dothe engender by little and little making itself grosse, for that they finde in it one skale upon another. That these stones are engendered in the gawl of beastes seemeth that it carryeth good reason." (Rabbi Moyses of Egypt, tenth century.)

The size varies with the age of the animal, from that of a pea to that of a pigeon's egg; the usual shape is similar to that of a date. The laminae vary in colours—red, brown, yellow, grey and white—so that a section of the mass exhibits a series of concentric rings.

The name is derived from the Persian Pad-zahr, antivenom, and the powers attributed to it were remarkable. It was held to be equally efficacious in poison administered orally or in the bites and stings of serpents, scorpions and insects—in cases of stone, epilepsy, epidemic fevers, plague and even in nervous derangements, such as depression, melancholia and mania. A list, in fact, of ills it did not cure would be far shorter! Its effect was said to be sudorific.

Firstly, dealing with the Eastern hemisphere, its history is summarised in one of the 1066 illustrated chapters in that vast encyclopaedia "Hortus Sanitatis," printed at Mainz, and first published in June, 1491. This colossal work, compiled from many sources, was collated by one Jacob Maydenbach and embodies all that had been written by classical and medieval authorities up to that time on flora, fauna and minerals, together with their medicinal properties and values.

Incidentally, the translation and elucidation of the 900 folio pages has been the patience, crossword or jig-saw puzzle of the author for over 30 years—never a dull evening!

The woodcut in facsimile reproduced on the next page depicts a noble or gentleman in a supine condition of ventral distension. It may be assumed that he was one of rank or position because the cost put this remedy out of reach of any but the wealthy. Standing beside him, a long-robed physician; his left hand tenders the Bezoar, with a smile of hope, whilst the other admonishes and indicates its miraculous virtues.

The quaint medieval Latin implies that it is a stone which frees all from all effects of poison, that its Arabian name is Hager, that the Persian name Bezoar has a twofold significance; the first covering all antivenom medicines, and the second our specific subject, which acts by virtue of special power which it contains. Rases says it is a soft yellowish stone devoid of taste and smell, that besides other hues, varying from lemon to red to white, that of wine colour is the lightest and the most glittering

and splendid. The chapter is succeeded by the usual list of medicinal properties and remedies, and here a yarn is thrown in. In brief, the Syrian doctor Seraphion (ninth century) and Rases (A.D. 860 to 940) are the two authors cited. A solution of Bezoar injected into the mouth of a snake causes instant demise by suffocation, so powerful is its action against the venomous. A Moor who tried an experiment before the King of Cordova, that famous seventh- to eleventh-century seat of learning, by taking first poison and then Bezoar with satisfactory results, was presented by the overjoyed monarch with one of the finest palaces in that noble city!

Of Seraphion we know little. His book on Simple Medicaments in 475 chapters has come down to us in a Latin edition of 1479. In the 306th chapter, which deals with the Bezoar, he says: "Its miraculous power in expelling poisons either from bites or stings from serpents, scorpions, etc., or taken in food or drink, is beyond praise. It can be taken in powder, chewed or held in the mouth with the same beneficial results. Its action is to produce a sweat. Worn on the person it is a sure preservative from disease or venom conveyed in clothes, drink or in letters."

Rases practised in Cordova during the ninth and tenth centuries. In the seventh century after the virtual collapse of European civilisation, victorious Islam swept over the whole of the Near East into Europe. The Caliphs—with a passion for culture, proceeded to establish seats of learning in some parts of conquered Spain. By the tenth century Cordova shone as a famous medical and scientific school under the patronage of Caliph Hakim, who encouraged men of learning to come to the city. A vast library said to contain 400,000 books was established. To this great centre came Rases, the Persian, steeped in Eastern lore. Here was compiled his *magnum opus*, the "Continens," a huge medical encyclopedia which has also come down to us in the printed Latin edition of 1486 in 25 folio volumes scaling 170 lb.! In this and the contemporary work by Seraphion are to be found the first references in Europe to the Bezoar, although the Eastern knowledge of the remedy was far earlier. Almost the whole of this vast library was destroyed in the disastrous sack of Cordova in the eleventh century. The extent of this overwhelming loss to the scientific world in general and to the medical and veterinary professions in particular, occasioned by this dire calamity, may be best assessed by perusal of half a dozen prescriptions, selected at random, vouchsafed to us by this mighty seer. It may be safely assumed that his work survived thousands inferior in value.

Medical

"The chameleon, from head to tail hath but one nerve which being hung about the neck of him that holdeth his head awry—cureth him.

"The uterus of a mule boiled with the flesh of an ass if eaten by a woman, who doth not know what it is, she will never conceive after the same.

"The suet of a leopard mingled with the oyle of the bay tree anointed upon one with the scurf or mangy doth without grief or pain, cure the same.

Veterinary

"For horses troubled with the 'sudden disease' take the tail of a weasel half white half black, chopped exceeding fine and mingle with their chaff or fodder.

"Any beast anointed with the tallow of a lion shall never more be troubled with flies.

"If an ox be tied with a halter made of wool he will wax tame and if the tail of a wolf be hanged in his rack or manger, he will abstain from eating."

No greater contrast could be imagined than that which separates such works from those of modern writers. Nor does this depend, as might be supposed, on the fact that a wider field of observation is open to us, but rather upon the widely differing atmospheres: mind and thought—ancient and modern—East and West.

The propaganda of Seraphion and Rases in Spain soon bore fruit. Thousands of Bezoars were imported from the East, though there was no reason to suppose that they did not exist in European ruminants. Those were not, however, the days of practical investigation. The Bezoars imported from India, Persia, etc., had been long established and were counted the best; incidentally, they commanded corresponding prices.

Often enclosed in golden or silver filigree caskets or set in rings to be worn, sucked, dipped in wine, etc., no court nor dignatory apprehensive of poison could afford to be without such an infallible antidote. Had not Edward the Confessor, wounded in the Crusades and dying, been restored to health by a Bezoar? Queen Elizabeth together with most European monarchs treasured this stone. During the Great Plague of London, 1665, they were hired out to sufferers, for half a guinea *per diem*. Needless to say fakes were universal!

On the question of what happened between then and now the author has waded laboriously through the writings of many men of science and medicine, and their patients with optimistic tendencies, from the days of Seraphion and Rases to the present century, who have perpetuated, distorted, nay, even exaggerated, the wonders of Bezoar. As such a lengthy discourse, however, would be out of place in this little article, let us take this wide ditch in our stride and be content with one further recent example.

The late Dr. R. James, M.D., in his "Pharmacopea Universalis," of 1747, devotes a lengthy article to the stone and recommends Europe as a source of supply as well as America and the East.

An intuitive or instinctive sagacity in detecting and avoiding poison, etc., has been ascribed to animals all down the ages. A medieval quotation runs:—

"The beastes that have no reason do by their nature shun hurtful things in lyke manner they have shewed us preservation against poyson."

Here is a handful of examples:—

Aristotle, 325 B.C., *History of Animals*.

"Cretan Wild Goats when wounded by arrows seek Dittany which expels them."

Lucretius, 55 B.C., *de Natura rerum*.

"Hellebore a violent poison fattens pigs."

Pliny, A.D. 70, *Historia Naturalis*.

"Bears cure themselves by eating ants."

Hortus Sanitatis, 1491.

"The Toad when bitten by a venomous spider seeks Salvia; and if he fails to find any blows up and bursts."

Baptist Porta, 1546.

"Elephants, by chance, having eaten a chamelion do eate of the wild olive against the poison."

Idem.

"The Tortoise after swallowing a serpent dispels the poison by masticating Origan."

Idem.

"Harts after browsing on poisonous food cure themselves by artichokes and from snake bite by parsnips."

—And so—*ad infinitum !*

Secondly, anent the Bezoar in the Western hemisphere:—

The third voyages of Columbus terminated in 1504 and for the next half century the Conquistadores had their hands too full in the conquest and consolidation of the vast areas, and in attempting religious conversion of the savages, to investigate with any degree of thoroughness local medicine; they suffered continually from disease and poisons, however.

An early account by an eyewitness has been preserved in a letter from a Spanish soldier, Peter de Osma, who describes a shooting expedition in the mountains of Peru accompanied by native carriers. Several "beastes much like a sheepe" fell to the bag. With the Indians was a lad of 12 who showed the party the pouch or gland in the animal where the calculi lay. The boy was shortly after killed for showing the foreign invaders their secret remedy against poison, so highly esteemed, offered to their deities and sold amongst one another for gold and precious stones. The wild sheep of the mountains was no doubt the llama or vicuna. The Indians hated the Spanish soldiery and were morose and uncommunicative towards them, to say the least.

This letter from Peru, dated June, 1568, was sent to Dr. Monardes, of Seville, with sample Bezoar. His first book on America was published the following year.

Dr. Nicholas Monardes, born the year Columbus returned from his original voyage of discovery, died as the Spanish Armada was being driven round the north of Scotland. Exciting times, not only for Spain but Europe at large, covering the introduction of the potato, tobacco, and syphilis—new features desirable, dubious and disastrous. He was a provincial general practitioner, genial, popular but obscure. He never travelled but sat in his pleasant house in Seville in constant communication with scientists, clerics, etc., in the "Newe found World" whence he collected not only information but specimens of plants, beasts, and minerals. A truly patriotic son of Spain, enthusiastic to broadcast descriptions of vegetable, animal and mineral products, now available from the West to rival the Portuguese in their monopoly in Eastern trade in hard woods, drugs, spices and jewels, hitherto the only available sources for European markets. He leapt into fame in his 76th year, by the publication of his famous book "Joyfull Newes out of the Newe World"—Seville, 1574, later translated into our language by John Frampton—London, 1577.

Of John Frampton we know little. He came of merchant adventurer stock probably not many miles from Dorchester. There can be no doubt he was the man to tackle the translation of Monardes. He tells us he had been a merchant in Spain and thence:—

". . . returning home into England out of Spain and now not pressed with the former toiles of my old trade, i to passe the time to some benefits to my countrie and to avoyde idlenesse, took to hande to translate."

When or where he was born or died we know not.

By far the most weighty evidence on the Bezoar in America comes from the Jesuit Father Joseph d'Acosta (1540-1600), who travelled in the South and central parts of America during his protracted visit from 1570 to 1589. To-day he is still regarded as one of the leading authorities on the ancient civilisation of Peru under the Incas, routed by Pizarro not 40 years before his arrival.

D'Acosta, a man of learning and intelligence who knew of the Eastern Bezoar, was an indefatigable observer as well as a collector of information: a kindly, friendly missionary who gained the confidence and respect of the natives; also a good linguist. His first landfall was Nombre de Dios on the eastern coast of central America, whence he penetrated the dense primeval forests to Panama, from the Atlantic to the Pacific. A further sea voyage carried him to Lima. Here orders awaited him to cross the Andes to join the Viceroy Francisco de Toledo, then on a tour of inspection of the interior. D'Acosta with a small party braved the rarefied atmosphere, snow blindness and terror of those dizzy altitudes. Finally, he joined the staff of his chief to find himself involved in an unsuccessful campaign against the numerous and savage Chirihuana Indians. The remainder of his extensive tour was centred at Lima, where he was engaged in the compilation of his notes on natives and natural history and also in vocabularies of native tongues.

During his perilous passage over the Andes, halted by snow blindness in a mountain hut, he was treated by a native woman, who applied the raw flesh of the vicuna to his eyes and later showed him the Indian method of catching these denizens of the rocks and snow-clad heights. He says:—

"Coming near they do cast cords with plummets of lead which entangle their legs. The chief cause this beast is esteemed is by reason of the Bezoar stone which they find in them. There is another beast the Targuas *(Cervus antislensis)* of greater body and nimbler than the Vicuna. They draw Bezoar stones of greater size from them with more operation and virtue." This was his first encounter with the calculus. Later, after wider experience of the Aborigines who now loved him and so held nothing from him, he proceeds: "The beasts which do engender the Bezoar chew the cud and commonly feed upon the snow and rocks. The Indians teach by the tradition from their Fathers and Antients that in parts where there are herbs and venomous beasts which poison the pastures and water, the Vicunas preserve themselves by this stone in the stomach, whence is drawn all the virtue against poison. This opinion and tradition was discovered by men of great experience in the Kingdoms of Peru. The Indians being asked why the sheep, kine and goats in Castille have no Bezoar stones, some feeding in the same sort of rocks, reply that they do not believe these beasts in Castille eat poisonous herbs. This opinion agrees with our experience."

Conclusion

The facts set out leave little room for doubt on the knowledge and application of the same animal product as the same antidote, by peoples cut off from one another. The problem thus arises as to how both sides of the Atlantic reached an identical—and incidentally a fallacious —conclusion?

Perhaps a few traits, opinions and motives which actuated early races all over the world may throw a glimmer on the obscurity.

From the dawn of history in the East and centuries before the discovery of the West the early nations had in common:—

1. Ancient civilisations, lore and legend.
2. Powers of keen observation.
3. Dread of evil—especially poison.
4. Knowledge of poisons.
5. Fascination for the miraculous and the inclination to credit every plant, beast or stone with powers for good or evil.
6. Tendencies to ascribe to brute creation powers of avoiding poison.
7. Blind acceptance of the lore of their forebears.

Is it, then, unreasonable to assume that the chance discovery of an unusual object in the interior of a ruminant known to browse on lethal plants led to a simultaneous conclusion that the animal, guided by instinct, produced and carried its own antidote? From which it was concluded that this remedy was of value to humanity.

Quien sabe ?

"UNSKILLED POACHING" OF DEER IN SCOTLAND

Lord Mansfield, supporting a proposal for a close season for deer at a meeting of the Perth branch of the Scottish Society for the Prevention of Cruelty to Animals, said that a cruel form of poaching was still being carried on in north Perthshire. The unskilled poacher did not know how to set snares, with the result that deer were known to have hung upside down for many hours before dying. He condemned the Army-type ammunition often fired by poachers. Many wounded animals die miserably hours or days afterwards and some might even linger in a sickly condition for a year or more.

The proposal for a close season was put forward by Lieut.-Colonel D. G. Moncrieff, who said that organised gangs were operating with a substantial backing from sources in Glasgow and Edinburgh, and even farther south. He recommended a close season for stags from October 25th to July 1st and a close season for hinds from February 15th to November 1st.

* * * * *

EQUESTRIAN EVENTS AT MELBOURNE GAMES

Reuter's correspondent at Canberra reports Sir Earle Page, the Minister of Health, as announcing that Britain, New Zealand, and Eire are the only countries which will be allowed to bring horses into Australia for events in the 1956 Olympic Games in Melbourne. Horses from other countries would be barred because of the risk of introducing diseases into Australia, and it was unlikely the ban would be lifted. "The chief Commonwealth veterinary officer, Mr. R. N. Wardle, said that if quarantine restrictions were relaxed in any way there would be a grave danger of animals being infected and food production affected."

Commenting on the decision, Mr. Otto Mayer, chancellor of the International Olympic Committee, said: "Equestrian events will have no meaning at all in the real Olympic sense if the Australian ban on horses other than from Britain, New Zealand, and Eire for the 1956 Olympic Games in Melbourne is not lifted."

[We understand that no firm decision has yet been taken to hold the 1956 Games in Melbourne.—*Editor.*]

* * * * *

The report of the Racecourse Betting Control Board, presented to the Home Secretary, Sir David Maxwell Fyfe, shows that a sum of £550,000 will be available for distribution for the benefit of racing, horse breeding, veterinary science, and charitable purposes compared with £485,000 the previous year. The board's recommendations for the allocation of this money will be studied by the Home Secretary, who will report to Parliament.

CLINICAL COMMUNICATION

TWO CASES OF SURGICAL REPAIR OF TENDONS IN CATS

JOAN O. JOSHUA, F.R.C.V.S.,
FINCHLEY, N.3.

Tendon is a tissue slow to heal after severe trauma such as complete rupture. It is therefore regarded as not the best tissue for an attempted surgical repair.

Only two cases of simple tendon rupture have been met with in the cat, both involving the tendo Achillis, and in each case surgical repair was successful. In an animal as athletic as the cat, good tendon function is essential and the following cases are recorded in the hope that more frequent attempts at tendon repair may be made, at least in the feline species.

CASE 1. *Subject.*—Four to five months kitten.

Presented with a vague history of "accident." Unable to use the left hind leg.

Examination revealed a general flaccidity of the flexor tendon, with a tendency for the hock to drop; the muscles and connective tissue behind the tibia were swollen and painful. Careful palpation of the swollen area revealed a small, hard body about the size of a rice grain. No skin wound was found but it was considered probable that the foreign body was an air-gun pellet. It was decided to attempt removal.

The kitten was anaesthetised and prepared in the usual manner. Incision was made over the site of the foreign body and the tissues separated until it was exposed; so far from being a "foreign" body, the object was found to be the epiphyseal top of the tuber calcis attached to the superficial flexor tendon and lying detached from its parent bone. The piece of detached bone was so small that it was felt that any attempt at replacement would be futile and the following procedure was adopted: The piece of bone was removed from the tendon and the exposed tendon tissue was freshened at the end: it was impossible to re-attach the tendon to its normal site on the os calcis and a slit was therefore made in the deep flexor tendon as near to the hock joint as possible; the tendo Achillis was introduced into this slit and was anchored by a number of catgut sutures. Connective tissue was drawn together and the skin wound sutured, using silk. Despite the absence of a penicillin "umbrella" (this case occurred in the pre-penicillin era!) healing was by first intention.

A doubtful prognosis as to future hock function was given but when the cat was seen some six months after the operation no difference could be detected in conformation or function between the injured limb and its fellow.

CASE 2. *Subject.*—Fifteen-year-old castrated male cat.

Had been attacked by a dog some three days prior to examination; was unable to use the right hind limb.

The cat was in excellent condition. Examination disclosed a completely dropped hock with rupture of the tendo Achillis.

It was pointed out that surgical repair offered the only hope of restoring function but that, in view of the age of the patient and the slow-healing nature of the tissue involved, the prognosis must be virtually hopeless. After discussion the owners decided that, rather than have the cat destroyed, they would give surgery a chance.

Operation was eventually performed about one week after the injury occurred.

The cat was anaesthetised by intravenous nembutal and the limb was prepared in the usual way. A long skin incision was made to give adequate exposure of the whole area posterior to the tibia. Dissection exposed the muscular bellies of the gastrocnemius which were contracted and had drawn up the Achilles tendon to some 1½ inches above the hock; the tendon was ruptured about ⅓ inch above its insertion into the top of the os calcis. A suture of silk-worm gut was passed through the ends of the severed tendon and these were brought into apposition and the suture tied; a second similar silk-worm gut suture was inserted in the tendon mass.

Then a number of sutures of fine nylon (3N) were inserted in the periphery of the tendon to reinforce the two major anchors. Connective tissue was then closely sutured around the area of repair using 000 catgut. The wound was dusted with a sterile sulphathiazole/proflavine powder and the skin sutured with nylon.

To obviate strain on the repaired tendon a very small plaster cast was applied over the hock, extending only about 1 inch above and below the joint, keeping it in a position of semi-flexion.

Full use of the penicillin "umbrella" was made in this case and the incision healed by first intention. After two days the cat took weight on the limb and in one week was using the leg nearly normally, in fact it became much too venturesome for peace of mind. The cast fortunately remained comfortable and was left for one month after the operation, when it was removed.

The cat was seen finally 18 days after removal of the cast, when function was nearly normal and the tendon had healed perfectly with not even any thickening at the site of damage.

In view of the age of the cat it is felt that the result in this case was far better than one had any right to expect.

SWINE FEVER OUTBREAK STAMPED OUT IN NEW ZEALAND

In his report for February, Dr. Ramon, Director of the Office International des Epizootics, states that information has been received from Dr. J. E. McIlwaine, Director of the Division of Animal Industry, New Zealand, that one outbreak of swine fever occurred in a herd of 38 pigs. All animals were destroyed and standard quarantine measures adopted. "There have been no subsequent developments and it is evident that the suppression of this small outbreak (which was caused by the feeding of illegally introduced foreign bacon) has stamped out the disease." The previous recorded outbreak of swine fever in New Zealand occurred in 1933.

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"LAST ROUND FOR LONDON DAIRY HORSES"

In a nostalgic note *The Times* of February 24th affirms that the milkman's horse in London, familiar reminder of a past age, is likely to be superseded by machinery in the next few years. Pressure from local authorities and troubles with traffic are reducing the numbers of horses employed. "A fortnight ago the last of those used by a big dairy firm in the West End was withdrawn. Another big firm has only a few horses left in the central area and these, too, may soon go. One dairy firm with about 1,500 horses has stopped replacing those which are not fit for further work, which means a reduction of about 150 a year.

"In London the most suitable horses for milk floats have been Welsh cobs. They are broken into traffic, taught not to kick, bite, or bolt, and then have an average working life of about 10 to 12 years. One firm sells its horses for other work before they are worn out, but another big firm takes the line that a horse that has been used all its days to town life would find work in the country difficult and the horses are kept until they are unfit for further work and then slaughtered."

ABSTRACTS

Evaluation of Methods of Obtaining Material for Demonstration of *T. foetus* in Bulls*

Three methods of obtaining material for the demonstration of *Trichomonas foetus* were evaluated in this study of eight infected bulls. A direct microscopical examination of each sample was made and the trichomonads were counted by the use of a haemocytometer. The authors found that the douche method was more efficacious than either the pipette or swab methods for demonstrating trichomonads when these were at a low level of concentration in the preputial cavity. They recommend it as the method of choice when samples can be collected and examined in the laboratory. In the field the pipette method was found to give more reliable results than the swab method. It would appear that the presence of pus-filled samples is associated with a relatively high occurrence of negative findings. For simplicity the pipette method is advised; the use of a plastic pipette is suggested to remove the hazard associated with glass instruments. A small number of tests with the inducement of an erection immediately before sampling indicated that in some bulls the concentration of trichomonads in the sample was sometimes increased. The authors feel that the additional time required and the difficulties in handling bulls do not justify its use in ordinary circumstances. The different sampling methods are described and the results tabulated.

B. V. J.

* **Relative Efficacy of Various Methods of Obtaining Preputial Samples for Diagnosis of Trichomoniasis in Bulls.** Fitzgerald, P. R., Hammond, D. M., Miner, M. L., & Binns, W. (1952). *Amer. J. vet. Res.* **13.** 452–457. (Seven refs.)

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Development and Bionomics of *H. contortus**

Dr. and Mrs. Dinnick continued their earlier work (recorded in this Annual Report for 1950) on the development and survival of larvae of *Haemonchus contortus*. At Kabete and near Longonot in the Rift Valley, larvae were exposed in powdered faeces in the open on grass and in the shade under a tree. Temperatures and humidities are not stated and only general remarks on the weather are given. "Development was completely arrested throughout January, February and the first half of March, the dry conditions apparently killing the larvae. A few larvae only developed in the shade during the second half of March." From mid-March to mid-June the long rains and relatively high temperature favoured larval development and faecal samples in the open in the shade yielded nearly as many larvae as controls kept in the laboratory; but few larvae developed in the open sun.

During the cold weather from the second half of June till August 20th, development was arrested; but later, when warmer weather came, development was resumed. In October, 1951, the short rains began and were unusually long and very heavy, and these conditions, together with the high temperature, created an environment exceptionally favourable to the larvae and massive numbers of larvae developed in 12 to 16 days.

Studies of the longevity of the larvae by methods described in this Annual Report for 1951 showed that the larvae survived in considerable numbers much longer in October and November than during the same period in 1950. Tables give the numbers of larvae recovered from experimental

* **Development and Bionomics of** *Haemonchus contortus*. Ann. Rep. E. Afr. Vet. Res. Org., 1951. (See also Reports Section of *Vet. Rec.* March 7th.—*Editor.*)

plots in the open and in the shade. This investigation confirmed the results obtained in 1950 and showed that the dry weather of January and February and the cool season from June to August are unfavourable to the larvae and are adequate by themselves to prevent the build-up of sufficient numbers of larvae to cause serious disease; also that maximum development occurs in rainy weather. These studies will provide a basis for timing anthelmintic treatment to minimise the egg output of the worms during periods most favourable to the development of the larvae.

G. L.

QUESTIONS IN PARLIAMENT

CIVIL LIABILITY (DAMAGE BY ANIMALS)

Mr. PHILIPS PRICE (March 2nd) asked the Attorney-General what action he proposes to take to implement the recommendations in the Report of the Committee on the Law of Civil Liability for Damage done by Animals.

The ATTORNEY-GENERAL: These recommendations are now under consideration.

Mr. PHILIPS PRICE: Have the Government any proposals in mind in view of the fact that there are farmers still suffering through damage done to sheep by dogs and there is a provision in the recommendations that might do something to meet that complaint?

The ATTORNEY-GENERAL: There is a number of different recommendations, and they do require quite a lot of consideration.

NOTES AND NEWS

Diary of Events

March 18th.—Meeting of the Editorial Executive, B.V.A., 2.30 p.m. (*Members are asked to note change of date from usual second to third Wednesday in the month*).

March 18th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at 1, Wimpole Street, W.1, 5 p.m.

March 19th.—Meeting of the Herts & Beds Division, B.V.A., at Luton (The George Hotel), 7.30 p.m.

March 19th.—V.V.B.F. (Northern Area): Dinner-Dance at the Northern Hotel, Aberdeen, 7.30 p.m.

March 19th.—Annual Dinner and Dance of the East Midlands Division, B.V.A., at Nottingham (The George Hotel). Reception 7 p.m.

March 20th.—Annual Dinner and Dance of the Yorkshire Division, B.V.A., at Bramhope, Leeds (Parkway Hotel).

March 25th.—Meeting of the Supplementary Register' Division, B.V.A., at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2, 2 p.m.

March 26th.—Sixty-ninth Annual General Meeting and the Annual Luncheon of the Western Counties Division, B.V.A., at Exeter (The Imperial Hotel). Proceedings commence 11.30 a.m.

March 27th.—Annual General Meeting of the Biochemical Society, in the Department of Biochemistry, University College, London, W.C.1, 11 a.m.

March 27th.—Meeting of the Lincolnshire and District Division, B.V.A., at Grantham (The George Hotel), 2.15 p.m.

March 27th.—Meeting of the North Wales Division, B.V.A., at Ruthin (Council Chamber), 2 p.m.

April 1st.—The Association of Veterinary Teachers and Research Workers: Joint meeting with the Northern Region, at the University of Liverpool Veterinary Field Station, Leahurst, Windle Hill, Neston, Wirral, Cheshire. Business, 10 a.m.; Symposium on "Skin Diseases," 11 a.m.

April 8th.—Meeting of the Southern Counties Division, B.V.A., at Bournemouth (Grand Hotel), 6.30 p.m.

April 9th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at 1, Wimpole Street, W.1, 6 p.m.

April 11th.—Annual Dinner of the B.R.X. Club, at the Royal Veterinary College, London, N.W.1.

April 25th.—30th Annual General Meeting of the Association of State Veterinary Officers, in the Auditorium of the Wellcome Foundation, 183-193, Euston Road, N.W.1, 2 p.m.

Sept. 6th and 12th.—Seventy-first Annual General Meeting and Congress of the British Veterinary Association, at Aberdeen.

B.V.A. COMMITTEE AND COUNCIL MEETINGS IN EDINBURGH

At the Royal (Dick) School of Veterinary Studies.

Monday, April 20th.—11 a.m. Organising Committee.
2 p.m. Parliamentary and Public Relations Committee.
3.30 p.m. Home Appointments Committee.

Tuesday, April 21st.—10 a.m. Veterinary State Medicine Committee.
12 noon Finance Sub-committee.
2.15 p.m. General Purposes and Finance Committee.

Wednesday, April 22nd.—11 a.m. Council meeting.

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B.V.A. ANNUAL CONGRESS, 1953

The 71st Annual Congress of the British Veterinary Association is to be held in Aberdeen from September 6th to 12th, 1953, and the provisional programme will be published shortly. In connection with this event, a list of hotels in which accommodation has been block-booked will be found below. A complete list of accommodation available in Aberdeen may be had on application to the Local Secretary of the Provisional Committee, Mr. Alastair Greig, Rowett Research Institute, Bucksburn, Aberdeenshire.

We publish the list unusually early this year for two reasons. The first is that, while good hotel accommodation in Aberdeen is reasonably plentiful, only a limited proportion is likely to be available to B.V.A. members. The holiday season in Aberdeen is still at its height in September—often the best month of the year—and in this Coronation Year the hotels expect to be particularly busy with overseas visitors.

The second reason is that we believe that many Congress visitors will wish to include the Braemar Games in their visit to the north. This Highland gathering—one of the outstanding events of the Scottish season, and regularly patronised by the Royal Family—is to be held on the Thursday preceding Congress week. Such is its popularity that to avoid the risk of disappointment it is imperative that grandstand or ringside seats be booked before the end of March. As described in the note below, special arrangements are being made for the convenience of B.V.A. members and their families who may wish to attend the Games.

It was as long ago as 1924 that the B.V.A. held its Annual General Meeting and Congress in Aberdeen. Many of our older members must have personal recollections of that event, which seems to have been a memorable one; to judge from reports—both written and verbal—it was one of the most successful ever held, and broke all existing records for attendance.

On that occasion the Congress was centred on Marischal College, one of the twin colleges of the University of Aberdeen. In 1924, however, there was no exhibition associated with the Congress (the first one ever held was at Cambridge in the following year); and in order to accommodate under one roof both the meeting-hall and the exhibition-hall, as well as to provide for many of the other facets of Congress activity, arrangements have been made for the B.V.A. to occupy Aberdeen Corporation Music Hall, in its entirety, throughout the forthcoming Congress week. We are indeed fortunate, for this handsome and spacious

building in the centre of the city is ideally suited to the purpose.

Aberdeen is well served by a number of first-class hotels, but the loss by fire of the Palace Hotel—the headquarters hotel in 1924—has left the city without a really large establishment capable of accommodating the majority of Congress visitors, and because of this the Provisional Committee has decided to break from tradition by not appointing a headquarters hotel. In addition to those listed below, there are many smaller hotels and private hotels in the city, while those members who prefer to stay farther afield will find that there is ample attractive accommodation within easy motoring distance. There will be room for everyone but it cannot be too strongly emphasised that arrangements should be made as early as possible.

. . . . .

Among residents in the more southern districts of our land there is a prevailing impression that Aberdeen is a long, long way away! It is true that it is some 500 miles distant by road from London, but what is not always realised is that transport arrangements to and from the north-eastern capital are truly excellent. There is a through railway service from King's Cross, via Grantham, York, Newcastle-on-Tyne, Edinburgh and the Forth and Tay bridges ; indeed, such an overnight journey, in a modern rail sleeping-car, is less exhausting and can be accomplished in greater comfort than many much shorter trips. Aberdeen is also linked by rail with the western trunk routes focusing on Crewe, by way of Carlisle, Glasgow and Perth. Alternatively, there is a daily air service from London or Manchester, the cost of which is no more than first-class rail fare. While for many people the cost of travelling to and from this year's Congress will no doubt be higher than usual, it should be remembered that the difference will be largely offset by the much lower cost of hotel accommodation in Aberdeen.

No doubt many of our visitors will travel by car, and take the opportunity of spending a motoring holiday in the Highlands and Lowlands of Scotland. There are innumerable itineraries which could be suggested, depending on personal taste and the time available. It will be enough to say that much of the bonniest scenery in Scotland can be seen by an approach through Roxburghshire to Edinburgh, and thence by eastern Perthshire (Pitlochry or Blairgowrie) over the Devil's Elbow to Braemar and Balmoral, and on to Aberdeen ; returning by Inverness or Speyside through the Trossachs to Loch Lomond, and then by Ayrshire and Dumfriesshire to Carlisle. Such a plan by-passes some of the most glorious districts of all—notably western Sutherland, western Ross and northern Argyll—and those with the time to spare not only will want to include them in their tour, but will have no difficulty in finding many another scenic gem of interest, beauty and romance.

The Braemar Games

Because of the special attraction held by the Braemar Games, which are to be held on Thursday, September 3rd, *i.e.*, in the week preceding the Congress, the local members of the Provisional Committee are arranging an organised excursion to this event from Aberdeen.

The opportunity of attending a Highland gathering is truly one that should not be missed. Typically Scottish in every way, the pipe bands, the Highland dancing, and the feats of the " heavyweights " in tossing the caber and throwing the hammer provide a magnificent and colourful spectacle. Apart from the presence of the Royal Family, the Braemar Games and Gathering derive especial popularity in virtue of their lovely setting in the natural bowl of the Princess Park.

It is expected that the demand for seating accommodation will be particularly heavy this year owing to the attendance of Coronation visitors, and it is imperative that reservations be made early. Mr. P. L. Shanks, Mill of Craibstone, Bucksburn, Aberdeenshire, has kindly offered to apply for such accommodation on behalf of members of the B.V.A. who communicate with him before March 31st next. Prices are as follows:—

Entrance and grandstand seats, 20s. Entrance and ringside seats, 10s. Entrance only, 2s. 6d. (children under 14 free of charge).

Those who wish to join the organised excursion from Aberdeen should also communicate with Mr. Shanks. The return motor-coach fare will be approximately 10s., and arrangements will be made to obtain meals *en route*.

B.V.A. 71st Annual Congress

Aberdeen, September 6th to 12th, 1953

LIST OF HOTELS*

A number of bedrooms in these hotels have been block-booked over the period of the Congress for the use of members of the B.V.A. and their families. Members should make their own individual arrangements with the hotel of their choice, and should mention that they will be visiting Aberdeen in connection with the Congress.

Name and address	Whether licensed	Facilities (see below)	Terms	
			Bed and breakfast	Full board
Caledonian Hotel, Union Terrace	Yes	ABCDG	22/6	11 gns.
Douglas Hotel, Market Street	Yes	ACD	21/- + 10 per cent.	—
Gloucester Hotel, Union Street	Yes	ACD	21/-	—
Imperial Hotel, Stirling Street	Yes	ADF (B some)	18/6 to 21/-	9 gns.
Marcliffe Hotel, Queen's Terrace	No	ABDEG	17/6	from 7 gns.
Northern Hotel, Great Northern Road	Yes	ACDFG	17/6	—
Station Hotel, Guild Street	Yes	ACDG	from 21/-†	from 37/6 per day

A, Hot and cold running water in all bedrooms ; B, Gas or electric fires in all bedrooms ; C, Central heating ; D, Children taken ; E, Games room ; F, Dogs taken ; G, Garage facilities.

* The information given here has been extracted from the Aberdeen Corporation Publicity Department Register of Accommodation, 1952.

† With private bathroom, 35/-. Single suite, £3/17/6, double suite, 5 gns. daily.

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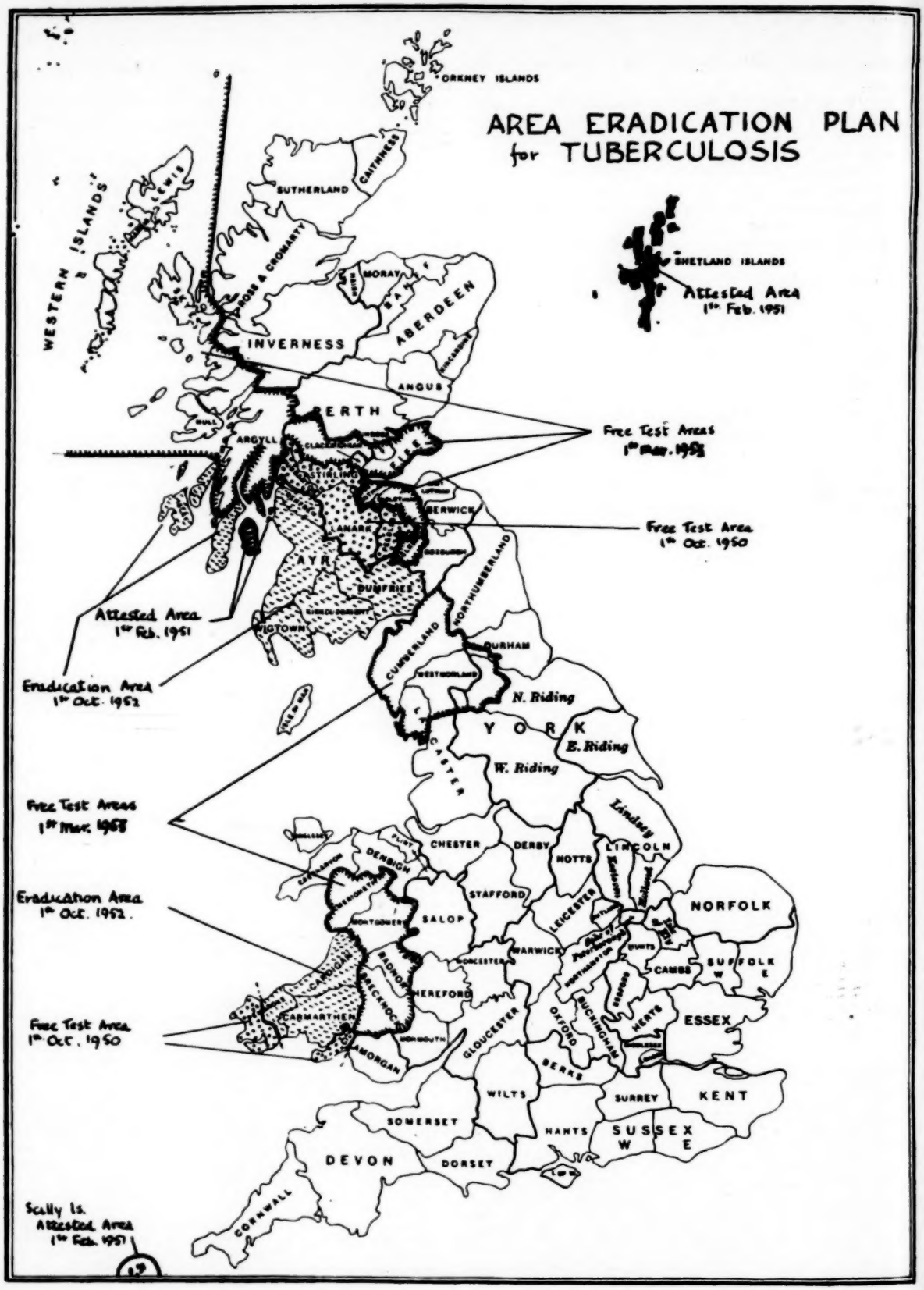
Seats for the Coronation

A short while ago the Association was offered through the Ministry of Works six seats in Hyde Park from which to view the Coronation procession, the price per ticket being £4.

The President and Officers of the Association decided to offer these seats to members of the General Purposes and Finance Committee. Many applications were received and a ballot for the six tickets was held, conducted by the President. The successful applicants were: Dr. J. Carmichael, Mr. T. M. Mitchell and Dr. S. J. Edwards.

* * * * *

The outbreak of foot-and-mouth disease at Billington, Bedfordshire, announced in another column, is the 21st reported in 1953. The number of animals slaughtered this year is 705 cattle, 1,387 sheep, and 367 pigs.


AREA ERADICATION PLAN
for TUBERCULOSIS
ORKNEY ISLANDS
SHETLAND ISLANDS
Attested Area
1st Feb. 1951
WESTERN ISLANDS
SUTHERLAND
CAITHNESS
ROSS & CROMARTY
MORAY
INVERNESS
ABERDEEN
ANGUS
PERTH
ARGYLL
FIFE
CLACKMANNAN
STIRLING
Free Test Areas
1st Mar. 1953
BERWICK
Free Test Area
1st Oct. 1950
LANARK
AYR
DUMFRIES
Attested Area
1st Feb. 1951
WIGTOWN
Eradication Area
1st Oct. 1952
NORTHUMBERLAND
CUMBERLAND
DURHAM
WESTMORLAND
N. Riding
YORK
E. Riding
W. Riding
LANCASTER
Free Test Areas
1st Mar. 1953
Lindsey
CHESTER
DERBY
NOTTS
LINCOLN
DENBIGH
FLINT
Eradication Area
1st Oct. 1952.
STAFFORD
LEICESTER
NORFOLK
SALOP
WARWICK
CAMBS
SUFFOLK W
SUFFOLK E
CARDIGAN
RADNOR
BRECKNOCK
HEREFORD
HERTS
ESSEX
Free Test Area
1st Oct. 1950
CARMARTHEN
GLAMORGAN
GLOUCESTER
OXFORD
BUCKINGHAM
BERKS
WILTS
SURREY
KENT
SOMERSET
HANTS
SUSSEX W
SUSSEX E
DEVON
DORSET
CORNWALL
Scilly Is.
Attested Area
1st Feb. 1951

AREA ERADICATION PLAN FOR TUBERCULOSIS

In our last issue we announced the intention of the Minister of Agriculture to declare four new areas in Great Britain as Tuberculosis Eradication Areas on March 1st, 1955, and to provide free tuberculin tests in those areas in the meantime.

Free tuberculin tests have been given since October, 1950, in that part of Pembrokeshire not included in the present Tuberculosis Eradication Area in South-West Wales; in the Bettws Mountain district of Carmarthen and that part of Glamorgan west of the Swansea valley, including the Gower peninsula; and in the counties of Dunbarton, Lanark, Peebles and Stirling.

The Minister of Agriculture and Fisheries gave notice in January, 1952, of his intention to declare these areas as Tuberculosis Eradication Areas on October 1st, 1953, but has now decided to postpone the date of declaration for three months to January 1st, 1954. This a more convenient date, since the season of heavy slaughterings of home stock will then be over and it will be easier to arrange for the slaughter of reactors found in the Eradication Areas. Moreover, seasonal movements of cattle into winter quarters will also have been completed and the compulsory tests will begin when movements are at a minimum.

Through the courtesy of the Chief Veterinary Officer we are enabled to reproduce a map, appearing on facing page, which gives full details of the position.

* * * * *

Therapeutic Substances (Prevention of Misuse) Bill

In our issue of last week, we recorded the Lord's agreement to the above Bill without amendment, on the Government's assurance that before any regulations are made, there will be full consultation with the Royal College of Veterinary Surgeons, on matters of veterinary interest as a whole, by the Minister of Agriculture before any recommendations by him are made to the Minister of Health. In this connection, we would stress the fact that this Bill is primarily a Public Health measure, designed for the protection of the human community.

The implications of the proposal that penicillin should be made available for addition to animal food were recently discussed between representatives of the British Medical Association and representatives of the B.V.A., and it was agreed, firstly, that penicillin was of value in fattening pigs under present-day conditions and, secondly, that there would be little risk to the consumer. Nevertheless, it was held to be essential that there should be safeguards to protect those employed in adding penicillin to the pig food, and also to make it virtually impossible for the penicillin to be extracted or made available for self-medication. An interesting discussion led to agreement that penicillin should be added initially to a suitable diluent before it was made available to the pig keeper for mixing with animal food. It was suggested, further, that the additive should be marketed only in suitable containers clearly marked with the expiry date of potency and a warning of the dangers of handling a penicillin mixture. The representatives who attended are recommending to the Councils of the Associations that representations on these and other points should be made to the appropriate Government Departments.

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BRITISH HORSE SOCIETY LECTURE DEMONSTRATIONS

The following series will be held at St. John's Wood Barracks, St. John's Wood, London, N.W.8:

Thursday, April 9th, 1953, at 7 p.m.—"The Sequence of Training a Riding Horse," by Colonel V. D. S. Williams, O.B.E., with demonstrations by Mrs. V. D. S. Williams on "Pilgrim."

Thursday, April 16th, 1953, at 7 p.m.—"Problems of a Master of Hounds," by Lieut.-Colonel H. C. R. Gillman, M.B.E., R.A., M.F.H.

Thursday, May 7th, 1953, at 7 p.m.—"Selection and Training of a Horse for a One-, Two- or Three-day Event," by Lieut. W. L. Thompson, D.C.M. (Royal Horse Guards).

Prices of Admission.—Members of the British Horse Society can obtain tickets up to the day before the lecture from the British Horse Society, 66, Sloane Street, London, S.W.1. Reserved seats, 5s.; unreserved seats, 3s. The price of tickets to non-members of the British Horse Society, and on the day of the lecture, 4s. at the door.

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PERSONAL

Mr. D. Luke's Doctorate.—Mr. David Luke, B.SC., (BELFAST), M.R.C.V.S., of the N.I. Veterinary Research Division of the Ministry of Agriculture, has been awarded a Ph.D. degree by the Queen's University of Belfast. The title of his thesis was: "Studies in Tuberculous Sensitivity in the Domestic Pig."

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Election as F.R.S.E.—Among the 25 new Fellows elected at the meeting of the Royal Society of Edinburgh held on March 2nd were Dr. Andrew T. Phillipson, M.A., M.R.C.V.S., Deputy Director and Head of the Physiology Department, Rowett Research Institute, Aberdeen; Mr. John T. Stamp, B.SC., M.R.C.V.S., Head of the Veterinary Department and Veterinary Investigation Officer, Edinburgh and East of Scotland College of Agriculture, and Mr. William L. Weipers, B.SC., M.R.C.V.S., D.V.S.M., Professor of Veterinary Surgery and Director of Veterinary Education in the University of Glasgow.

* * * * *

Birth.—TURNER.—On January 15th, 1953, to Audrey (*née* Abrams, M.R.C.V.S.), wife of Richard S. Turner, a son—Timothy Richard—brother to Michael, Brian and Rosemary.

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Marriage.—LLOYD-GRIFFITHS—PEARSON.—On February 14th, 1953, in Rugby, Joyce Pearson to Francis Lloyd-Griffiths, M.R.C.V.S. Future address: Lower Lodge Farm, Brownsover, Rugby.

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R.C.V.S. OBITUARY

BROWN, James, M.R.C.V.S., Captain, late R.A.V.C., Veterinary Officer, Ministry of Agriculture and Fisheries, stationed at Aylesbury, Bucks. Graduated Glasgow, December 12th, 1941. Died March 3rd, 1953; aged 37 years.

GOLDING, George Vernon, M.R.C.V.S., Major R.A.V.C. (retd.), c/o Glyn Mills & Co., Whitehall, S.W.1. Graduated London, July 20th, 1911. Died February 24th, 1953.

HEDLEY, Richard, M.R.C.V.S., Oxborne Cottage, Bantham, Kingsbridge, Devon. Graduated Liverpool, December 19th, 1923. Died March 6th, 1953; aged 54 years.

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GENERAL OBITUARY

SIR ROBERT GOWER

We record with deep regret the death, which took place at his home in Tunbridge Wells on Saturday last, of Sir Robert Gower, K.C.V.O., O.B.E., whom the veterinary profession held in high esteem, not only because he devoted the greater part of his life to promoting the welfare of animals, but for his leadership and wise counsel in the affairs of the Royal Society for the Prevention of Cruelty to Animals, with which our Association has for many years enjoyed a cordial and fruitful relationship.

An eminent member of the legal profession, Sir Robert was a prominent figure in the House of Commons for over 20 years, his activities there as member for Hackney and then for the Gillingham Division of Rochester centring round his concern for the protection of animals to the fullest extent ensurable by legislation. Until his retirement from Parliament in 1945, Sir Robert, from 1929, was Chairman of the Animal Welfare Committee. He introduced and piloted through all stages the Protection of Animals (Cruelty to Dogs) Act of 1933, the Protection of Animals Act of the year following, which deals with the training and performance in public of animals, the Cinematograph Films (Animals) Act of 1937, and the Dogs Act of 1938. He introduced other measures, including one for the protection of pit ponies; he helped to establish and was President of the Pit Ponies Protection Society. Apart from his lifetime of association with the R.S.P.C.A., whose silver medal he was awarded in 1932, he had been Chairman and Hon. Treasurer of the National Canine Defence League since 1920.

It was but a fitting recognition of and reward for his lifetime of service to animals that, having been Chairman of the R.S.P.C.A. for 23 years, in the summer of 1951 he was unanimously elected President of that great organisation.

The funeral took place at Trinity Church, Tunbridge Wells on Wednesday last, when the British Veterinary Association was represented by Major R. C. G. Hancock, M.R.C.V.S., a Past-President.

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R.V.C. STUDENTS' UNION SOCIETY ANNUAL BALL

This year the annual ball of the above Society was held at the Royal Festival Hall and proved an unqualified success. The company numbered over 400, those participating including approximately 50 graduates and their partners: it is hoped that they both successfully renewed old acquaintances and made pleasurable new ones. The Hall, which afforded a very pleasant view over the river, was divided into upper and lower floors, the latter being devoted to the dancing. This arrangement in no way detracted from the enjoyment of the evening—the tables full of conversation, the floor crowded, right to the end of the programme.

We were honoured to have as our principal guests: Professor Buxton, M.A., F.R.C.V.S., D.V.H., Principal and Dean of the Royal Veterinary College; Mr. A. J. Wright, M.R.C.V.S., Senior Vice-President of the British Veterinary Association; Mr. Hodgman, M.R.C.V.S., Director of the Canine Research Station, Newmarket; and Professor Amoroso, PH.D., M.B., B.CH., B.A.O., Professor of Veterinary Physiology in the University of London. Unfortunately Mr. Graham, M.R.C.V.S., President of the British Veterinary Association, and Professor Wooldridge, F.R.C.V.S., M.R.I.A., Emeritus Professor of Medicine, were unable to give their personal support as they had wished. We were extremely pleased to have such a good attendance of members.

The West End public had a glimpse of the sense of well-being enjoyed by all throughout the evening. A four-in-hand coach took some of the top-hatted and becloaked guests to the festivities. Alas, the journey was not uneventful, as they were forced to stop by a cry of "Stand and Deliver!" from a highwayman—in costume of course—but they were allowed to proceed after he had gained his traditional payment from the ladies. The coach horn, played by Mr. John Hughes (second year), enlivened the rest of the journey.

The scene inside the Hall was aglow—the modern furnishings blending with the large numbers of really beautiful gowns. As with other, though less auspicious, R.V.C. dances, Scottish dancing was enjoyed, the 'pipes adding that extra touch of gaiety and colour. The hunting horn competition was a great success, Mr. Chris. Cullen (fourth year)—our highwayman—securing the prize of an engraved pewter tankard for his efforts. Mr. Jim Goddard, Huntsman to the Surrey Union Hunt and a one-time All-England Champion, judged and gave a brilliant demonstration afterwards.

The dancing continued into the morning, and after a breakfast of "hot dogs" and coffee we made our way home through darkened (it was not quite dawn) and unfamiliarly deserted London.

We would like to thank everyone for their support. We hope all had an enjoyable and worthwhile time, and that all will be seen again at the 162nd Ball, when it is hoped to augment the veterinary flavour.

The Sketch took many photographs which were published in their issue of March 11th.

R. S. C.

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Milk Marketing Board Production Division Report

Increase in Yield Per Cow

Maintenance of Improvement in A.I. Conception Rates

The annual report of the production division of the Milk Marketing Board for 1952 states that there was a certain hesitancy in the milk producing industry: the steady expansion of the industry over the last two decades (apart from the period of adjustment to war-time conditions) has been halted for the time being at least. The dairy cow population declined, a few milk producers turned to other lines of farming, and others reduced their emphasis on milk production. On the other hand, there was solid evidence of progress. Increases in yields have almost offset the reductions in the population of cows, and there are indications that milk supplies may again increase. The numbers of dairy cattle have steadied recently.

In the opinion of the Board, milk supplies can be expanded from the present level of cow population without encroaching on other livestock enterprises. The report gives heartening figures of increase up to 400 gallons per cow achieved in herds which have been continuously recorded for the last nine years and says it is not until fairly high levels are reached that it becomes difficult to sustain performances. Nevertheless, "it is clear that there is still good scope for improvement in the lower yielding herds, of which there must be a considerable number in our national dairy herd." The report notes that supplies of milk were not adequate to meet even the liquid demand in all months, and suggests that within the framework of Government policy the position in future could be assured only by an increase in yield per cow.

Average figures for herds on an intermediate level of production nine years ago—as opposed to those on the lowest level of production, which produced the most spectacular increases—were:—

37 Ayrshire herds averaging 6,390 lb. in 1942/43 reached 8,541 lb. in 1950/51.
87 Friesian herds averaging 6,603 lb. in 1942/43 reached 9,430 lb. in 1950/51.
35 Guernsey herds averaging 5,544 lb. in 1942/43 reached 7,456 lb. in 1950/51.
34 Jersey herds averaging 5,499 lb. in 1942/43 reached 7,811 lb. in 1950/51.
127 Shorthorn herds averaging 5,577 lb. in 1942/43 reached 7,242 lb. in 1950/51.

Artificial Insemination

Artificial insemination, says the report, continued to expand in spite of a year of difficulties due to restrictions on the service in areas affected by foot-and-mouth disease and to the loss of the bull stud at Beccles. "A third of our cattle are now mated by A.I. and there are areas like Devon, Cornwall and Carmarthen where more than half of the cows concerned are included in the A.I. service.

"The picture is now, therefore, completely changed from that of 10 years ago, before the introduction of A.I., and when more than half of the national herd were mated to non-pedigree bulls. Now there are 20,000 fewer bulls in use; one-third of the national herd are mated to carefully selected A.I. bulls, about a half are mated to pedigree bulls and only the remaining one-sixth are mated to non-pedigree bulls.

"The A.I. movement has played a vital rôle in this almost revolutionary change. The number of pedigree bulls being registered has now, it seems, passed its peak, so it is likely that A.I. will continue to exert an increasing influence on the cattle population. The process of bull selection is reaching its final stage—the first was the elimination of the scrub bull by the licensing arrangements, under the Live Stock Improvement Act, 20 years ago; then the expansion of the pedigree movement by Breed Societies brought about the steady elimination of the non-pedigree bull, and now, under the impetus of the A.I. movement, the number of pedigree bulls is being gradually restricted to the best among them."

The improvement in conception rates noted in recent years has been maintained:—

Conception Rates by Year
(*Year April 1st to March 31st*)

Year	*Main centres C.R.*	*Sub-centres C.R.*	*Overall C.R.*
1947/48	64·6	63·8	64·4
1948/49	64·1	60·9	62·7
1949/50	66·3	64·4	65·5
1950/51	67·6	67·0	67·6
1951/52*	68·7	68·5	68·6

*1951/52—Main centre inseminations = 313,085
Sub-centre inseminations = 393,760
Total = 706,845

"These results, achieved in a difficult year" (disturbance of service by foot-and-mouth disease and consequent reliance on imported semen at some centres), "justify the confidence that has been created in our service throughout the country. By keeping in touch with the technical problems associated with infertility every effort will continue to be made to improve on these rates, for they are probably the best measure of an efficient service. Furthermore, the Board, through the work of their veterinary surgeons and staff, are looking closely at related problems of great interest to the movement." Some aspects of this work are dealt with in succeeding pages, *e.g.*, use of various agents as semen diluents; reaction of bovine semen to temperatures below freezing; international co-operation in the use of A.I. in breeding experiments.

Emphasis is laid in the report on the combined effect of the Milk Recording and A.I. movements. Between 80 and 90 per cent. of recorded membership are members also of A.I. or a Breed Society.

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DECONTROL OF ANIMAL FEEDING-STUFFS

On Thursday of last week the Ministry of Food announced that the date on which rationing and price control of animal feeding-stuffs will end is August 1st. On that date, also, all growers of wheat will be free to dispose of their wheat as they choose. They will no longer be required to sell 75 per cent. of their crops for human consumption or seed. The date when millers will be free to make flour of less than the National flour extraction of 80 per cent. will be August 30th.

These decisions are the results of discussions which the agricultural departments and the Ministry of Food have been having with the interests concerned, in accordance with the White Paper on decontrol of cereals and feeding-stuffs. The White Paper itself gave April 1st as the date when feeding-stuffs will cease to be subsidised. The date and details of the arrangements for the importation of cereals and feeding-stuffs by private trade are to be announced as soon as possible.

The particulars given refer to England, Scotland and Wales only. Those for Northern Ireland will be announced separately by the Northern Ireland Ministry of Agriculture.

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THE VETERINARY COLLEGE OF HANNOVER

This year the Veterinary College of Hannover, one of the oldest in Europe and one of the largest in the world, attains the 175th anniversary of its foundation. To mark this historic occasion and the restoration of the college, where normal working routine has been established after the ravages of war, the Rector and Senate have arranged a programme of celebrations from July 29th to 31st, 1953. This will take the form of a review of the development of veterinary colleges, and of Veterinary Medicine, throughout the world, and it is hoped that veterinary surgeons attending the XVth International Congress in Stockholm from August 9th to 15th will be able to arrange a prior visit to Hannover. Hannover is situated in the British zone of the Federal Republic of Germany, and the city is easily accessible by car, rail or aeroplane from the ports of Bremen and Hamburg: visitors from England travel via the Hook of Holland. Enquiries should be addressed to Professor Dr. R. Völker, Rektor der Tierärztlichen Hochschule, 20a Hannover, Misburger Damm, 16.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

ANTHRAX:

Aberdeenshire.—Bellfield, Kingswells, Aberdeen (Mar. 2).

Argyllshire.—Pollwilline Farm, Southend, Campbeltown (Mar. 2).

Ayrshire.—Broomhill Farm, Dundonald (Mar. 3).

Ches.—Tattenhall Road Farm, Newton-by-Tattenhall, Chester; Warmbrook Farm, Chapel-en-le-Frith, Stockport (Mar. 2); Great Shepcroft Farm, Appleton (Mar. 3); Sutton Hall Farm, Little Sutton, Wirral (Mar. 4).

Cumberland.—The Dyke, Ravenglass (Mar. 3).

Derbys.—The Farm, Lea, Matlock (Feb. 27).

Dorset.—Old Barn Field, East Farm, Tolpuddle, Dorchester (Mar. 2).

Durham.—Aislaby Grange, Eaglescliffe, Stockton-on-Tees (Mar. 2).

Flints.—Dairy Farm, Lower Mountain Farm, Penyffordd (Mar. 3).

Glos.—Middle Hall Farm, Eastington, Stonehouse (Mar. 4).

Hants.—Arlott's Farm, Hartley Wintney, Basingstoke (Mar. 2).

Lancs.—Sykes Hall Farm, Warton, Preston (Mar. 5).

Norfolk.—Home Farm, Letton, Thetford (Mar. 2).

Salop.—Walkmill Farm, Burleydam, Whitchurch (Mar. 2).

Somerset.—School Farm, Otterford, Chard (Mar. 3).

Staffs.—Betley Court Farm, Betley, Crewe (Feb. 27); Hall Farm, Crakemarsh, Uttoxeter (Mar. 2).

Yorks.—Draft Farm, Flaxton, York; Carr Farm, Bielby Lane, Pocklington, York (Feb. 27); North Farm, Roos, Hull (Mar. 3).

FOOT-AND-MOUTH DISEASE:

Beds.—Newhouse Farm, Billington (Mar. 9).

FOWL PEST:

Cambs.—36, Bridge Street, Chatteris (Feb. 27).

Essex.—Birch Hall, Colchester (Feb. 27).

Herts.—Hill Rise and Kingsway, North Orbital Road, Garston, Watford (Mar. 3).

Kent.—Chemist, High Street, Westerham (Mar. 5).

Lancs.—Oaktree Avenue, Ingol, Preston (Mar. 4).

Oxon.—Horse and Harrow Inn, Rokemarsh, Benson, Oxford (Mar. 1).

SWINE FEVER:

Ches.—Littleton Old Hall, Littleton (Feb. 27); "Greenfields," Foulk-Stapleford, Chester (Mar. 6).

Cornwall.—Polgrean Farm, Ludgvan, Hayle; Kayle Farm, Hayle; Lower Cargenwin, Black Rock, Praze, Camborne (Feb. 28); Bodardle Farm, Lostwithiel; Glenthorne, Three Mile Stone, Truro; 52, Dalcoath Avenue, Camborne; 2, Avery Terrace, Lostwithiel (Mar. 2); Lanhadron, St. Ewe, Mevagissey, St. Austell (Mar. 4); Higher Tremenheere, Ludgvan, Penzance; Crowgey, Constantine, Falmouth; Summerville, Barripper, Camborne (Mar. 5).

Denbighs.—Yscubor Newydd, Cefn, St. Asaph (Mar. 3).

Derbys.—Stud Farm, Calow, Chesterfield (Feb. 28).

Essex.—Grange Farm, Whitehall Road, and Mill Farm, Leavenheath, Colchester (Mar. 2).

Glos.—Baldwyn's Farm, Newent, Gloucester (Mar. 2).

Hants.—Headley Mill Farm, Headley, Bordon (Mar. 3).

Kent.—The Piggeries, Powdermill Lane, High Brooms, Southborough, Tunbridge Wells (Mar. 5).

Lancs.—Knott Booth Farm, Milnrow, Rochdale (Feb. 27); School Farm, Bagshaw Lane, Hindley, Wigan (Feb. 28); 245, Derbyshire Hill Road, St. Helens (Mar. 6).

Lincs.—The Bungalow, Sutton Bank, Long Sutton, Spalding (Mar. 2); 2, Highbridge Villas, Eastoft Road, Luddington, Scunthorpe (Mar. 3); Holywell Farm, Beltoft, Belton (Mar. 5); Waltham House Farm, Louth Road, New Waltham, Grimsby (Mar. 6).

Staffs.—Crookhouse Farm, Pinfold Lane, Great Barr, Walsall (Feb. 27); School Farm, Birch Lane, High Heath, Walsall; Poole House Farm, Enville, Stourbridge (Feb. 28); Whitfield Road Allotments, Norton, Stoke-on-Trent (Mar. 4).

Suffolk.—Grimston End, Pakenham, Bury St. Edmunds (Feb. 28); 566, Nacton Road, Ipswich (Mar. 3); Water Lane Farm, Denston, Newmarket; 218, Britannia Road, Ipswich (Mar. 5).

Surrey.—York Hill Piggeries, Owlsmoor, Camberley (Mar. 2).

Warwicks.—Parkfield House Farm, Coughton, Alcester (Mar. 2); Coldbath Farm, Yardley Wood Road, Shirley, Birmingham, 13 (Mar. 3); 21, Nightingale Lane, Coventry (Mar. 4); The Cliffs, Tippers Hill Lane, Fillongley, Coventry (Mar. 5); 114, Gracemere Crescent, Hill Green, Birmingham, 28 (Mar. 6).

Worcs.—Pig Farm, Enville Road, Wall Heath, Stourbridge; Weights Farm, Redditch (Feb. 27); Bank Farm, Pedmore, Stourbridge; 25, Oakham Fields, Oakham, Dudley.

Yorks.—28, Leasorne Road, Leeds, 10; Making Place Farm, Soyland, Ripponden, Halifax; Parnham Farm, Ryton, Malton (Feb. 27); Busby Hall, Carlton, Middlesbrough; Queen Street Allotments, Grimethorpe, Barnsley; 22, Keresforth Road, Dodworth, Barnsley; Beech Towers, Heald's Road, Dewsbury (Feb. 28); Ash Grove Farm, Lascelles Hall, Lepton, Huddersfield (Mar. 4); Huggate Wold Farm, Huggate, York; 10 & 11, Whitby Avenue Allotments, Stockton Lane, York (Mar. 6).

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HARRY STEELE-BODGER MEMORIAL FUND

Seventh List of Donations

The Appeal Committee again acknowledges with grateful thanks the following further donations to the Fund:—

	£	s.	d.
Total announced on February 28th	2,501	1	1
Dr. J. Anderson (Kenya)	1	1	0
Col. & Mrs. G. H. Anson (Burton-on-Trent) ...	2	2	0
Miss M. Badham (Sutton Coldfield)	5	5	0
Mr. Ian R. Barker (Hereford)	1	1	0
Mr. R. V Blamire (Enfield)	1	1	0
Mr. P. V. Byrne (Waterford)	2	2	0
Mrs. P. M. Couch (Atherstone)	1	1	0
Mr. W. Davies, Mr. D. G. E. Davies, and Mr. Morgan Wynne (Llandyssul)	6	6	0
Dumfries and Galloway Veterinary Medical Association	10	10	0
Mr. Leslie Dwerryhouse (Bridgnorth)	5	5	0
Miss S. H. Evans (Sutton Coldfield)	1	1	0
Mr. Ferrier (Portsoy)	1	0	0
Mr. and Mrs. L. R. Geffen (Jamaica)	2	2	0
Mr. G. Gibson (Oakham)	2	2	0

Mr. J. D. Gilmore (Witham)		5	0
Dr. J. V. L. Grant (Tamworth)	5	5	0
Messrs. H. R. Grubb, Ltd., Printers (Croydon) ...	5	5	0
Mr. H. E. Hornby (Hartley, S. Rhodesia)	2	0	0
Mr. J. S. MacCann, Mr. P. G. MacCann (Tullamore)	1	1	0
Mr. M. J. MacClancy (Raheny, Co. Dublin)	1	1	0
Major F. Monk (Sutton Coldfield)	1	1	0
Mr. W. Murchie (Castle Douglas)	1	1	0
National Veterinary Benevolent and Mutual Defence Society	52	10	0
Mr. P. A. O'Neill (Mold)	1	1	0
Mr. V. E. Perry (Bristol)	2	2	0
Mr. H. Platt (Sutton Coldfield)	1	1	0
Mr. N. F. Pollock (Cromer)	1	1	0
Mr. A. J. Porteous, Mr. J. M. Gittins (Leyburn) ...	1	1	0
Royal College of Veterinary Surgeons	105	0	0
Royal Counties Veterinary Medical Association ...	26	5	0
Royal (Dick) Alumnus Association	10	10	0
Scottish Metropolitan Division	5	0	0
Mr. I. G. Shaw (Wolverhampton)	1	1	0
Mrs. H. J. Smith (Duntocher)		10	6
Mr. Robert M. Smith (Galston)	2	2	0
Mr. J. D. Stuart (Invergordon)	2	0	0
Veterinary Students' Committee, Royal (Dick) School of Veterinary Studies	10	10	0
Yorkshire Veterinary Association	25	0	0
Mr. Stuart Young (Bucksburn)	1	0	0
Anonymous	1	1	0
	£2,808	14	7

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BRITISH FRIESIAN'S WORLD BUTTER-FAT RECORD

In 365 days a British Friesian cow, Zenda Bountiful, owned by Mr. A. Drexler, of Manor Farm, Kidlington, Oxford, produced 1,799 lb. of butter-fat, enough for 2,116 lb. of butter, or a year's ration for 217 people. She thus becomes the first cow in the world to produce more than 2,000 lb. of butter in the period of a year.

Zenda Bountiful was calved by Zed Harlech Bunty, also owned by Mr. Drexler, which held the butter-fat record from March, 1951, until last November, with 1,682 lb. Another British Friesian owned by Viscount Hudson, war-time Minister of Agriculture, then produced 1,689 lb.

The address of The British Friesian Cattle Society is now Scotsbridge House, Rickmansworth, Herts.

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LATIN AMERICAN MEETING ON ANIMAL PRODUCTION

In a recent message from Rome, FAO reports on the Latin American Meeting on Animal Production recently sponsored by FAO and held, at the invitation of the Brazilian Government, at Bauru, Brazil.

"Of most immediate interest are the requests made by the conference that FAO should (*a*) convene a working party to deal with foot-and-mouth disease and (*b*) prepare a draft proposal for a permanent Inter-American Livestock Commission, on the lines of the International Rice Commission. A third recommendation among many others called for the setting up of a special research station or a co-ordinated inter-country programme for work on the problems of the livestock at high altitudes, problems of special interest in South America where much of the potential grazing land is so high up that environmental stresses prevent its proper utilisation by livestock."

Foot-and-Mouth Disease Control

"Speaking on his return from this meeting, Sir Thomas Dalling, FAO's veterinary specialist, said that at present relatively little is being done to control this disease in this region except in a few countries. There is at Rio de Janeiro a research centre set up by the Organisation of American States (OAS) at which foot-and-mouth disease diagnosis is done, in relation to other diseases, and where foot-and-mouth viruses are typed. There are not, however, fully organised means for dealing with the disease on an international, or even on national scales in most countries; farmers in general can buy what vaccines they like and administer them or not as they think fit. There are several reasons for this apparently casual treatment of a disease which, in Europe and North America, is combated by fully controlled government campaigns whenever it appears. One reason is that in South America many of the beasts have been exposed to the disease for so long that they have acquired at least partial immunity, and show only mild symptoms which farmers may ignore or never even notice at all. Yet every such animal is a potential threat to other countries outside the region, to which infected carcases might be exported. Another factor is that concentrations of cattle in the area are not so great as elsewhere, and are often many hundreds of miles apart. The chances of a great and sudden epidemic sweeping through the area, as was the case in Europe last year, are therefore remote. At the same time, the total number of cattle in the region is larger than in Europe, and the cost in losses of animal products due to foot-and-mouth disease is probably as great, if not greater. For these reasons, the request that FAO should call a meeting soon of the representatives of the governments concerned, as well as the International Office of Epizootics and the OAS Research Centre, is most welcome. Such a meeting would in fact initiate a working party, of which the ultimate outcome could be a permanent body to deal with problems of foot-and-mouth disease control, working under the general guidance of the over-all Inter-American Livestock Commission mentioned above."

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TENTH WORLD POULTRY CONGRESS, 1954

It is announced that the tenth World Poultry Congress will be held in Edinburgh next year, from August 13th to 21st.

The Queen and the Duke of Edinburgh have consented to be Patrons, and the honorary president of the Congress will be the Rt. Hon. James Stuart, Secretary of State for Scotland. The organisation of the Congress, under the auspices of the World's Poultry Science Association, is being carried out by the Department of Agriculture for Scotland, with full co-operation of the poultry industry. Apart from the scientific papers, a full programme of visits, of both educational and social value, is being arranged.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

THE ANTHRAX ORDER

A Correction

Sir,—In my Clinical Communication "Anthrax" in *The Veterinary Record* of February 28th, I stated that "the Anthrax Order makes no provision for live animals suspected of suffering from the disease."

This statement is of course incorrect and misleading; the Order repeatedly makes provision and states:—

"A diseased or suspected animal or carcase" and goes on fully to define "animal."

It was my intention to convey the difficulty of ascertaining when a live animal is infected with or suspected of anthrax, or when it becomes free from the disease or suspected disease in order that Form B may be served.

In this particular case some of the pigs went on snoring for several weeks after they had otherwise appeared to have recovered. Also one calf infected in the second outbreak remained unthrifty and scouring for some two months. In spite of treatment it eventually died.

The Anthrax Order and Instructions to Inspectors do not and cannot reasonably give any specific or clear ruling or advice on such eventualities. However, it was quite incorrect to have Form B endorsed as in outbreak No. 1 and Form A should have been altered to include only suspected animals and their premises of isolation until such time as they were considered reasonably free from disease or suspected disease. This as indicated in Article 3 para. (5) of the Anthrax Order.

I regret any misunderstanding or misinformation that may have risen from my statement. I hope my correction will stress further everyone's responsibility under the Anthrax Order.—Yours faithfully, P. D. G. Bowen, 72, Church Street, Bishop's Castle, Salop. *March 2nd*, 1953.

Advertiser's Announcement

Veterinary Penicillin Granules Glaxo

Glaxo Laboratories Ltd., Greenford, Middlesex, announce the introduction from March 9th of Veterinary Penicillin Granules Glaxo. This product, containing 2·5 per cent. w/w procaine penicillin, will be supplied in 8 oz. tins. It is primarily intended for the prophylaxis and treatment of calf and pig scours and other intestinal infections, and is specially prepared to mix easily into the food or drink.